

Notice of Allowability

Application No.

10/511,826

Applicant(s)

UEHARA ET AL.

Examiner

Art Unit

Ling-Siu Choi

1713

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to the Amendment filed 11/08/2006.
2. ☒ The allowed claim(s) is/are 11 and 13-21.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|--|---|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892) | 5. <input type="checkbox"/> Notice of Informal Patent Application |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 6. <input type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date _____ |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date _____ | 7. <input type="checkbox"/> Examiner's Amendment/Comment |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | 9. <input checked="" type="checkbox"/> Other <u>Supplemental Office Action</u> . |

DETAILED ACTION

1. This Office Action is in response to the Amendment and the Declaration, both being filed November 8, 2006. Claims 1-10 and 12 were canceled and claims 11 and 13-21 are now pending.

Allowable Subject Matter

2. Claims 11 and 13-21 are allowed.
3. The following is an examiner's statement of reasons for allowance:

The present claims are allowable over the closest references: Bieser et al. (US 6,214,924 B1), Hayashi et al. (US 6,232,377 B1), Manabu et al. (JP 08-176343), and Kensho et al. (JP 09-221567).

For Claims 11 and 13-15

Summary of Claim 1:

A thermoplastic resin composition (Y) comprising			
A	20-64.9 wt%	ethylene copolymer	(A-1) ethylene/1-butene copolymer
			(A-2) ethylene polymer other than A-1
		weight ratio of (A-1)/(A-2) = 20/80 to 100/0	
B	35-70 wt%	metal hydroxide	
C	0.1-30 wt%	graft-modified ethylene polymer	
wherein the ethylene/1-butene copolymer (A-1) has the following properties:			
i	density = 857- 890 kg/m ³		
ii	melt flow rate (MF ₂) = 0.1-100 g/10 min		
iii	Mw/Mn =1.5-3.5		
the graft-modified ethylene polymer (C) is a graft-modified product with an unsaturated carboxylic acid or a derivative thereof in an amount of 0.01-10 wt%; the ethylene polymer before graft-modication is anethylene/1-butene copolymer having the following properties:			
i	density = 857- 890 kg/m ³		
ii	melt flow rate (MF ₂) = 0.1-20 g/10 min		
iii	Mw/Mn =1.5-3.5		

Bieser et al. disclose a polyethylene composition comprising (A) from about 5 weight percent to about 70 weight percent of at least one homogeneous ethylene/ α -olefin interpolymer having: (i) a density from about 0.85 g/cm³ to about 0.92 g/cm³, (ii) a molecular weight distribution (Mw /Mn) of less than about 3.5, (iii) a melt index (I₂) of from about 0.1 grams/10 minutes to about 175 grams/10 minutes, (iv) a CDBI of greater than about 50 percent; (B) from 30 weight percent to 95 weight percent of at least one

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filler; and (C) from 0.1 weight percent to less than 10 weight percent of at least one functionalized polyethylene, wherein the filler can be magnesium hydroxide; the functionalized polyethylene can be a polyethylene grafted with maleic anhydride which has density of 0.871 g/cm^3 and melt index of 0.4 g/10 min (col. 8, line 26; col. 9, lines 3-13; Table-Material J; Claim 1). However, Bieser et al. do not teach or fairly suggest the claimed thermoplastic resin composition comprising (A) an ethylene copolymer comprising (A-1) ethylene/1-butene copolymer and (A-2) an ethylene polymer other than (A-1), (B) a metal hydroxide, and (C) a graft-modified ethylene polymer, wherein the ethylene/1-butene copolymer having specific properties; the graft-modified ethylene polymer is ethylene/1-butene copolymer before graft -modification which has the specific properties.

Hayashi et al. disclose a composition comprising (A) about 50-95 wt% of at least one ethylene copolymer, (B) about 5-50 wt% of an ethylene/ α -olefin copolymer, (C) about 2-50 parts by weight of a polyethylene modified with a functional group containing compound, (D) about 5-250 parts by weight of a metal hydroxide, (E) about 1-12 parts by weight of a triazine ring containing compound, and (F) about 0.5-5 parts by weight of a flame retardant compound, wherein the amounts of (C) -(F) are based on 100 parts by weight of component (A) and component (B) combined and wherein the ethylene/ α -olefin copolymer has a melt flow rate of about 0.5-50 g/10 min; a density of $0.860\text{-}0.935 \text{ g/cm}^3$; and a Mw/Mn of up to about 3 (col. 5, lines 6-24; col. 6, lines 42-65; claim 1). However, Hayashi et al. do not teach or fairly suggest the claimed thermoplastic resin composition comprising (A) an ethylene copolymer comprising (A-1) ethylene/1-butene

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copolymer and (A-2) an ethylene polymer other than (A-1), (B) a metal hydroxide, and (C) a graft-modified ethylene polymer, wherein the ethylene/1-butene copolymer having specific properties; the graft-modified ethylene polymer is ethylene/1-butene copolymer before graft-modification which has the specific properties. Furthermore, in view of the Declaration, the use of ethylene/1-butene copolymer as A-1 and graft-modification of ethylene/1-butene copolymer as component C results in a composition which is superior in torsional rigidity and elongation at break, compared with the corresponding composition containing ethylene/octane copolymer as A-1 (Examples 1-3 - col. 9, line 62) and graft-modification thereof [elongation at break 700/630 vs 440; torsional rigidity 30/36 vs 44].

For Claims 16-21

Summary of Claim 16

A polymer composition (Z) comprising		
AA	100 parts by weight	at least one thermoplastic polymer (aa1) or at least one thermosetting polymer (aa2)
BB	50-250 parts by weight	a metal hydroxide
E	0.1-40 parts by weight	a triazine ring containing compound
F	0.1-40 parts by weight	a polyhydric alcohol
Wherein the composition is <u>free of a phosphorous-based flame retardant</u>		

Manabu et al. disclose a composition comprising (A) 100 parts by weight of resin, (B) 10-25 parts by weight of ammonium polyphosphate, (C) 1-15 parts by weight of a compound containing polyhydric hydroxy group, (D) 1-10 parts by weight of a

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compound containing the triazine ring such as melamine, and (E) 0.1-5 parts by weight of metallic hydroxide such as magnesium hydroxide (abstract). However, Manabu et al. do not disclose the claimed polymer composition comprising (AA) 100 parts by weight of at least one thermoplastic polymer or at least one thermosetting polymer; (BB) 50-250 parts by weight of a metal hydroxide; (E) 0.1-40 parts by weight of a triazine ring containing compound; and (F) 0.1-40 parts by weight of a polyhydric alcohol, wherein the composition free of a phosphorous-based flame retardant.

Kensho et al. disclose a composition comprising polyolefin resin, 1-30 wt% polyammonium phosphate compound (A), 0.1-30 wt% amine phosphate (B), 0.1-30 wt% nitrogenous compound (C), and 0.1-20 wt% of polyhydric alcohol (D), wherein the total amount of components A, B, C, and D is 10-50 wt% based on the entire composition (abstract; [0019],[0035]). Kensho et al. further disclose that a metal hydroxide can be added into the composition ([0038]). However, Kensho et al. do not disclose the claimed polymer composition comprising (AA) 100 parts by weight of at least one thermoplastic polymer or at least one thermosetting polymer; (BB) 50-250 parts by weight of a metal hydroxide; (E) 0.1-40 parts by weight of a triazine ring containing compound; and (F) 0.1-40 parts by weight of a polyhydric alcohol, wherein the composition free of a phosphorous-based flame retardant.

In light of the above discussion, it is evident as to why the present claims are patentable over the prior art.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably

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accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ling-Siu Choi whose telephone number is 571-272-1098.

If attempt to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu, can be reached on 571-272-1114.



LING-SUI CHOI
PRIMARY EXAMINER

November 25, 2006